

FIG. 2

- 91-Reflector Super Elements, 22
- Reflector Super Element, 22
 - Width: 4.45 m
 - Focal length: 2.225 m
 - Feed: 37 element array, 34

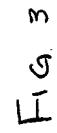
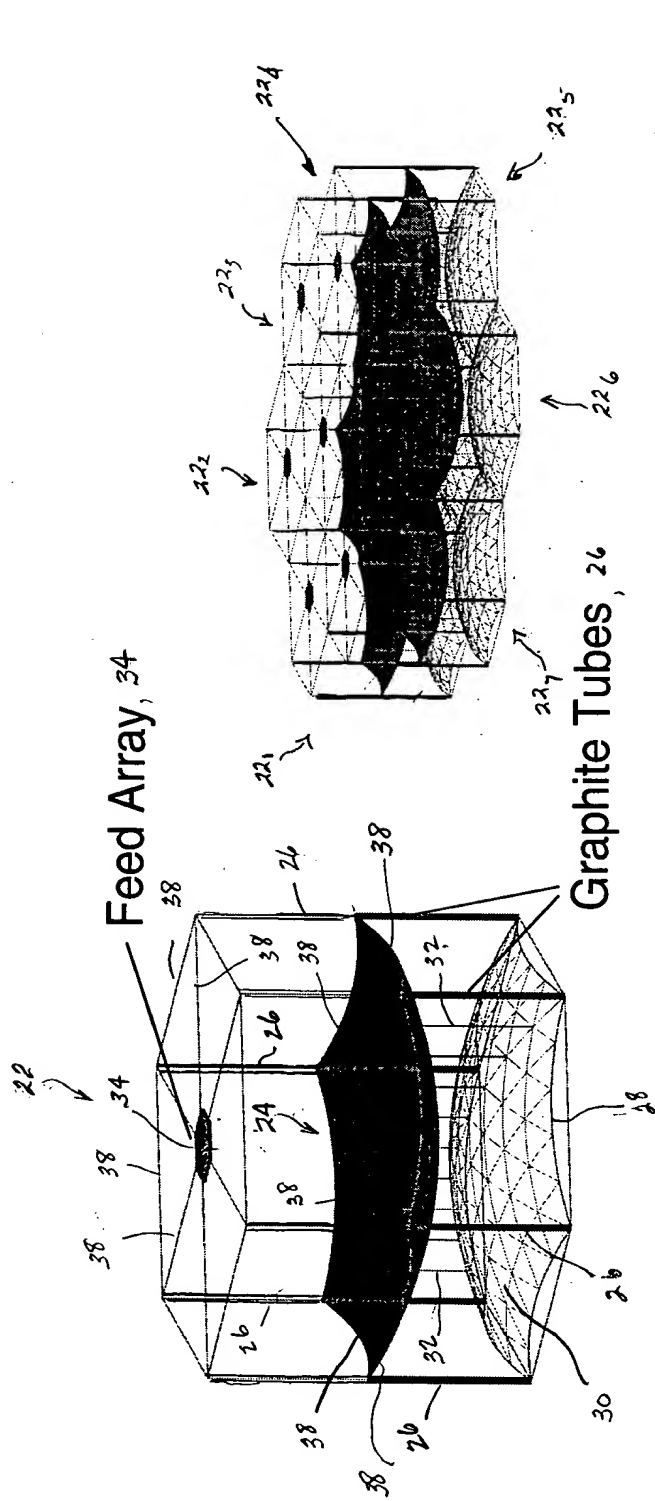


Fig. 3



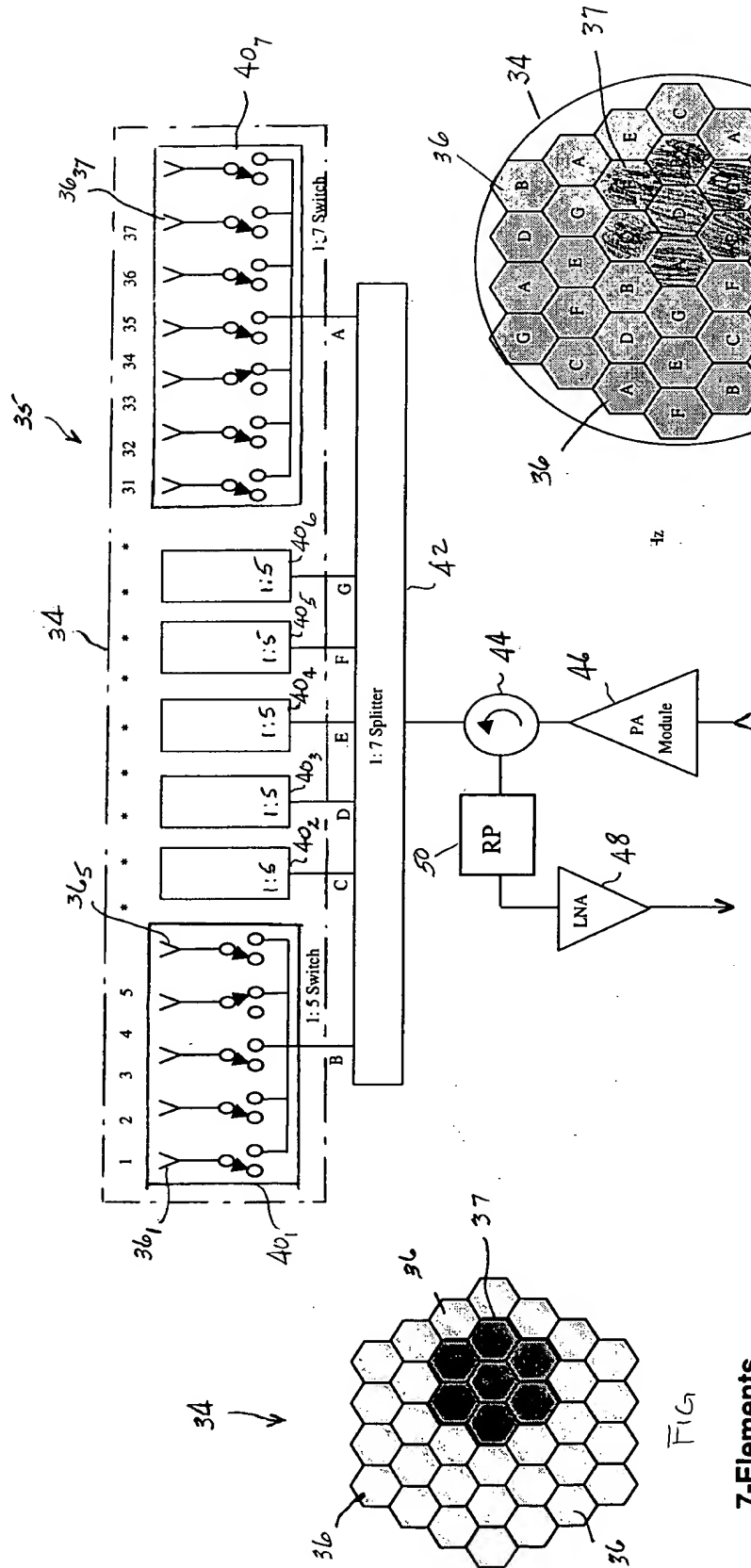
a. Details of single cell, 22

b. Group of 7 cells, 22, ... 22₇

FIG. 4 A

FIG 4 B

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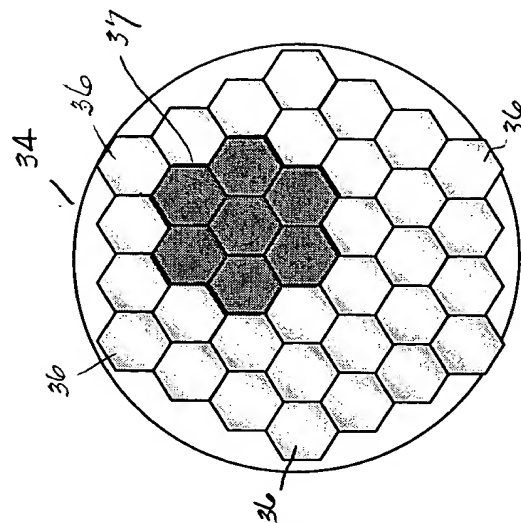
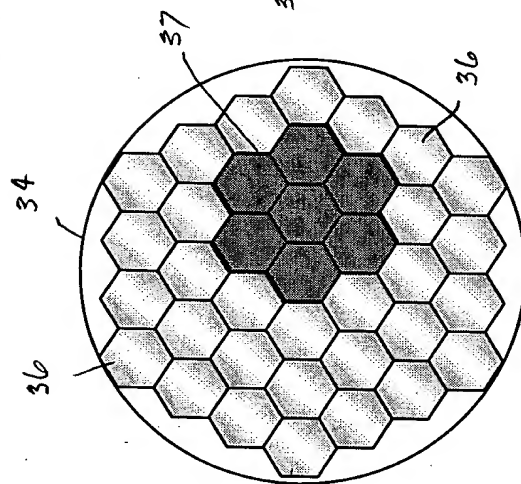
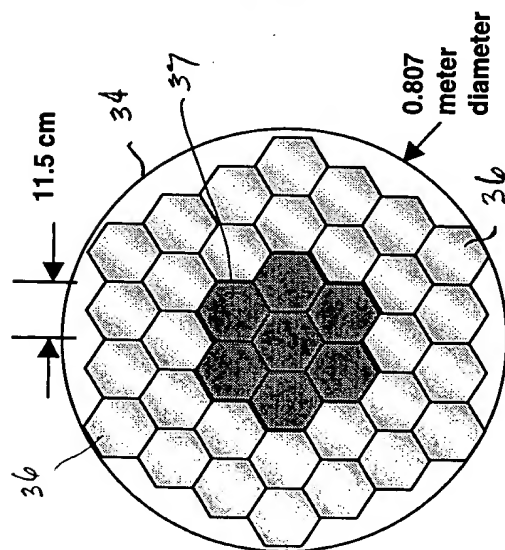
7-Elements Turned on for Tx & Rx

Fig. 5

Fig. 6

FIG. 7

Examples of Feed Selection



Power is Distributed to a Similar Group
of 7 Elements in Each Feed

Fig. 8 a.

Fig. 8 b.

Fig. 8 c.

0.807
meter
diameter

11.5 cm

Optimum Beam For Central Feed Group Time Delay Units Steer Array Factor to 0°

Group selected steers
'super element' beam
to 0°

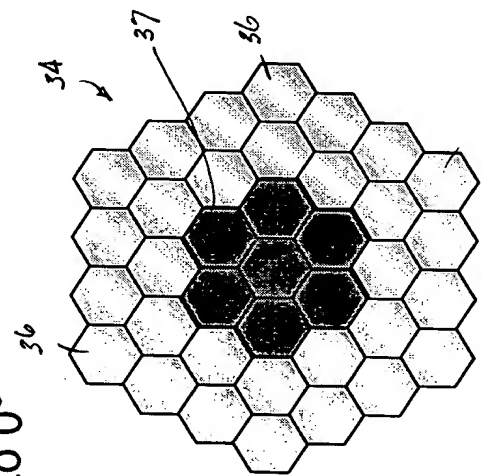


FIG. 9A

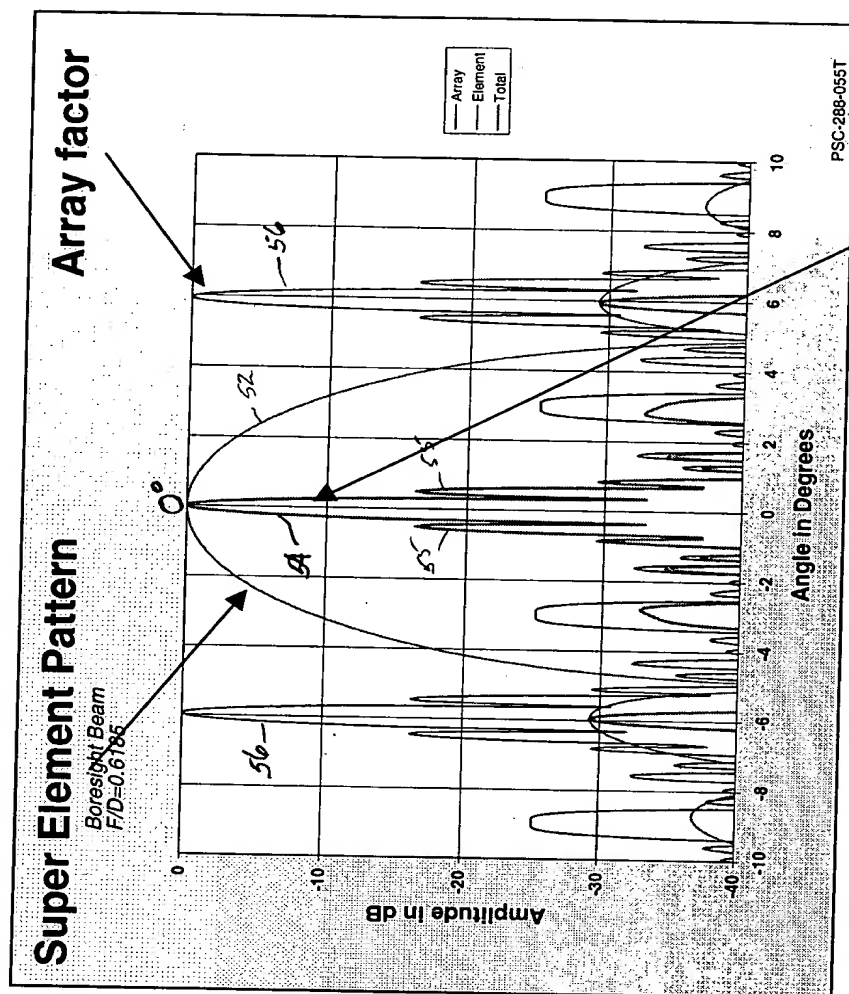


FIG. 9B

Composite Antenna Pattern

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Beam at Limit For Central Feed Group Time Delay Units Steer Array Factor to 1.1°

Group selected steers
'super element' beam
to 0°

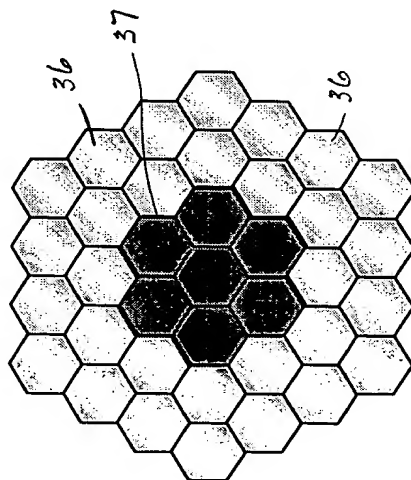


FIG. 10A

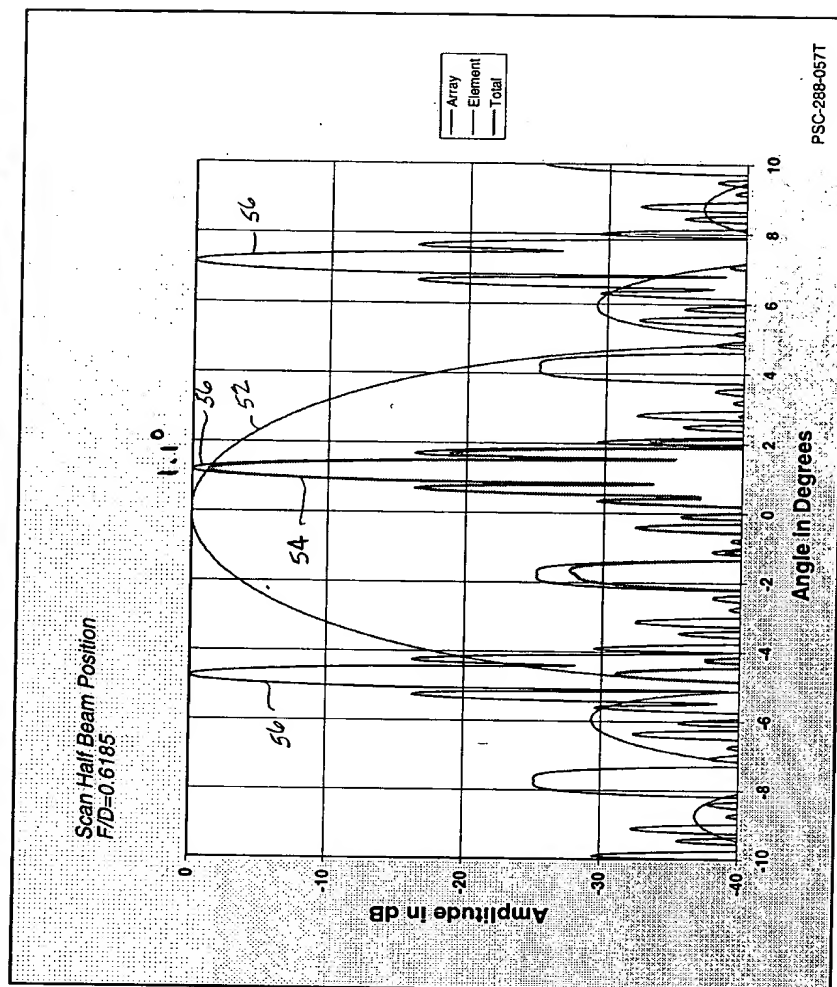


FIG. 10B

Optimum Beam For Offset Feed Group Time Delay Units Steer Array to 2.4°

Group selected steers
'super element' beam
to 2.4°

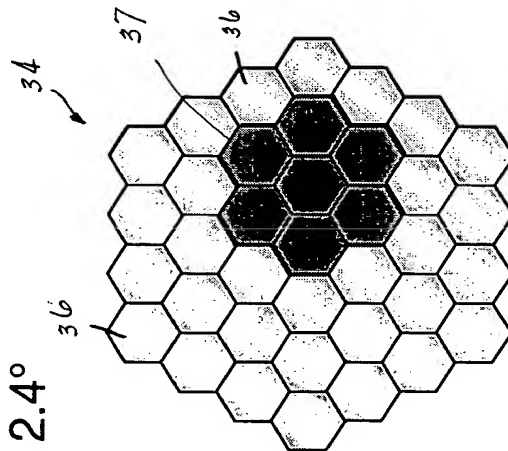


FIG. 11A

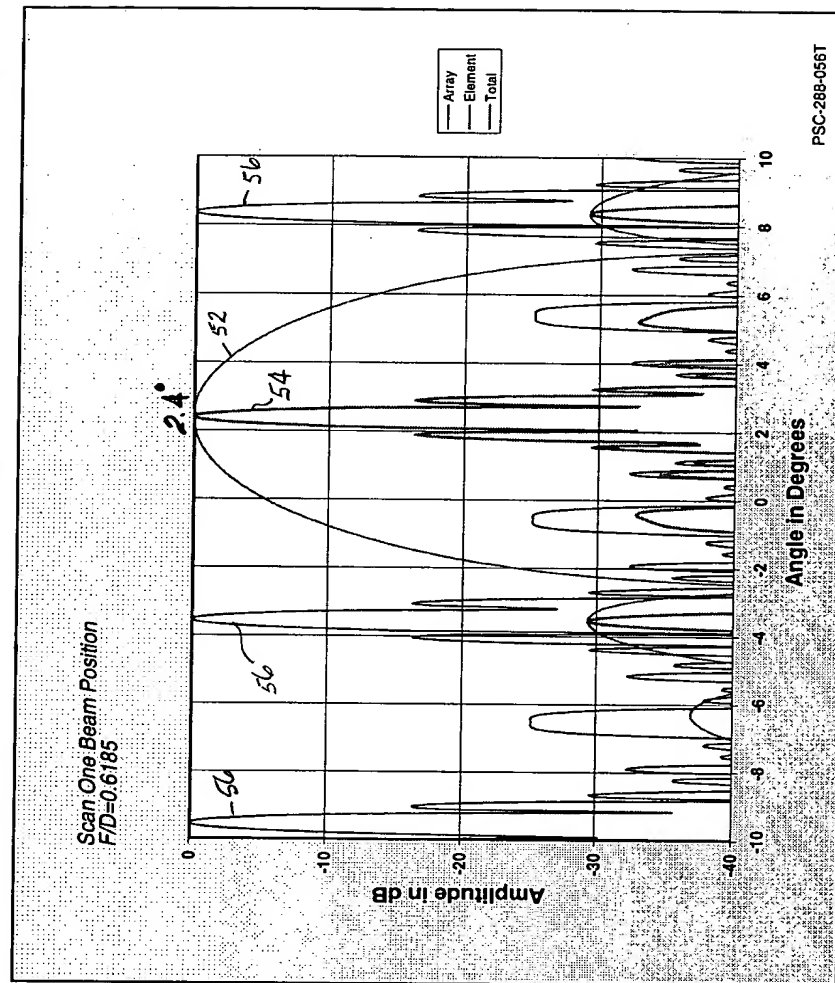


Fig. 11B

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Scan Limit For Outer Most Feed Group Time Delay Units Steer Array Factor to 6°

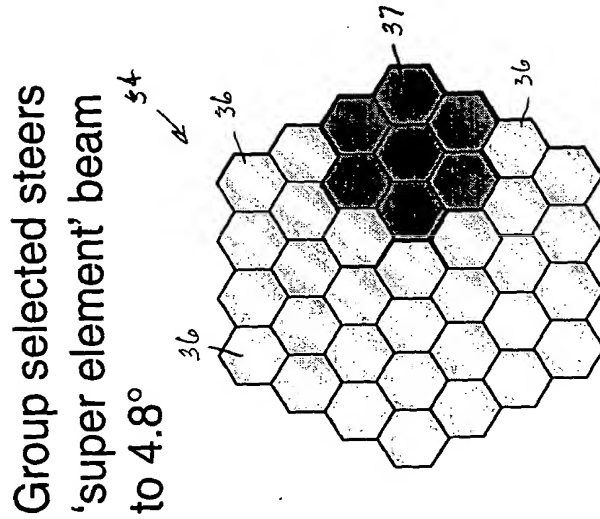


FIG. 12A
Note: Only 1.5 dB Off-
Boresight Loss at 6° Scan

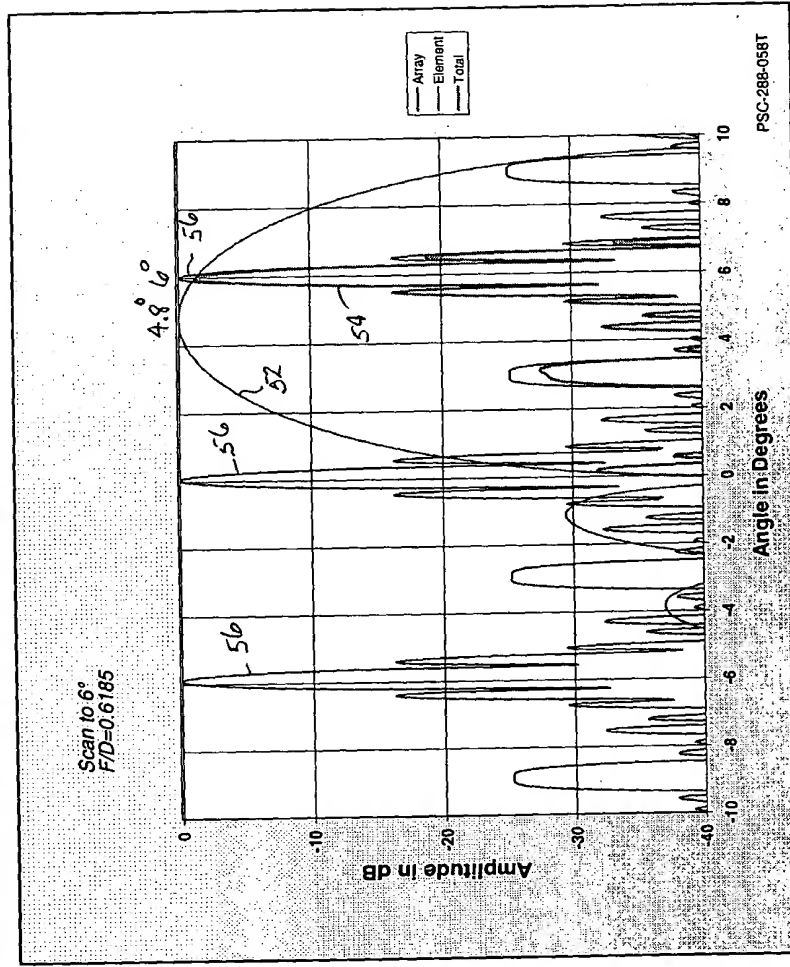


FIG. 12B

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An Example of the Grating Lobe Problem Steer Array Factor in Elevation to 1.386°

Group selected steers
'super element' beam
to 0°

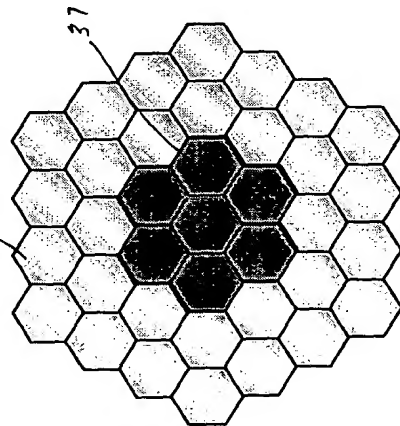


FIG. 13A

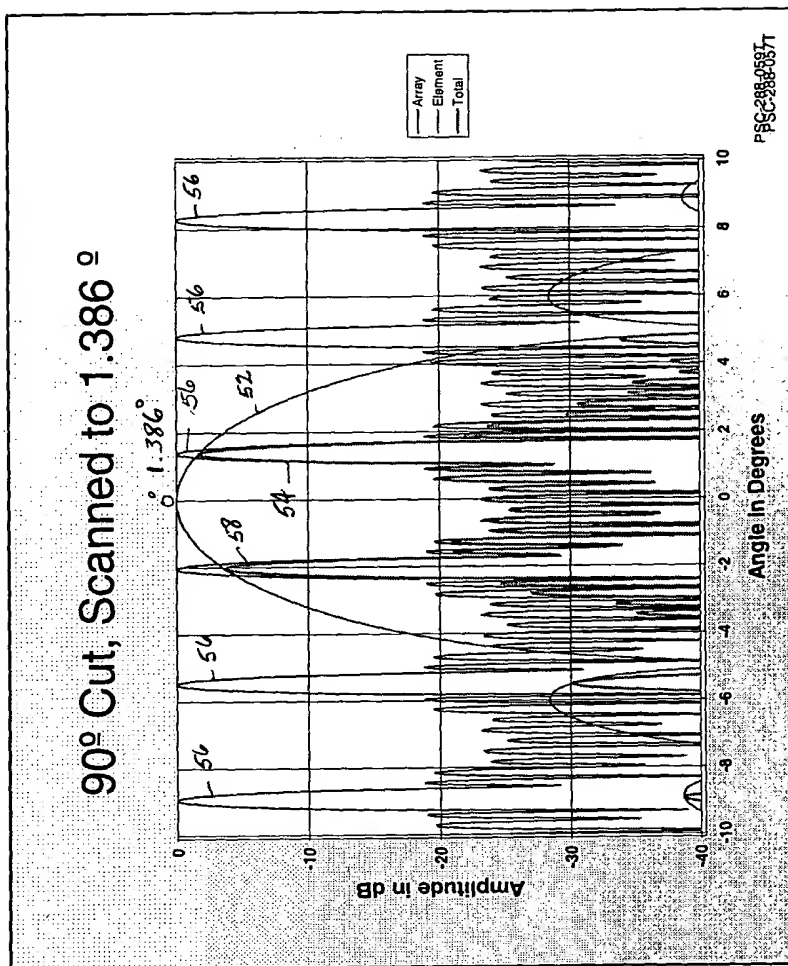


FIG. 13B

BD - 99 - 09,
1215 - 3991

Gradual Transition is a Way to Translate Between Beams

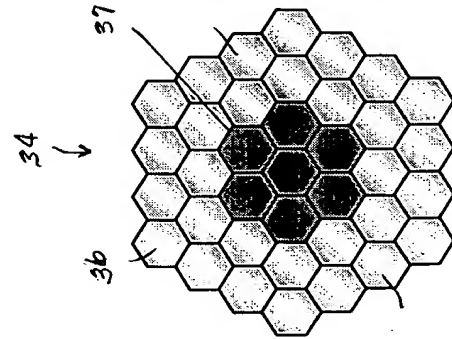


FIG. 16A

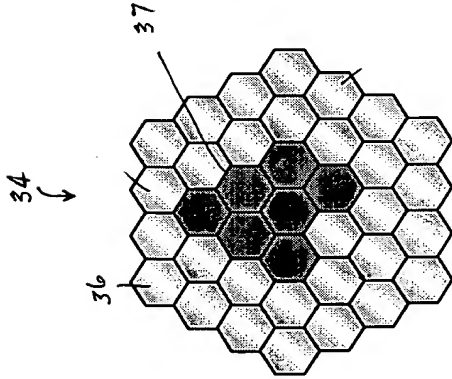


FIG. 16B

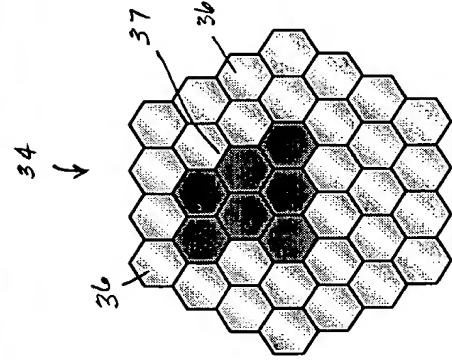


FIG. 16C

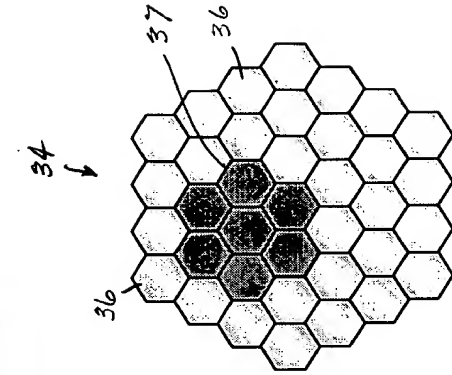
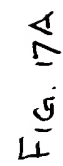


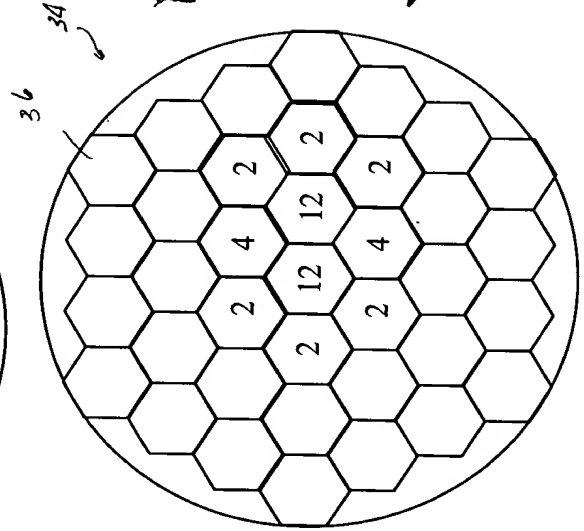
FIG. 16D

Advantage is it uses the same number
of feed elements



A diagram of a hexagonal lattice structure. At the center is a cluster of 10 hexagons arranged in a hexagonal pattern (a central hexagon surrounded by a ring of 6, which is further surrounded by a ring of 3). This central cluster is surrounded by a single ring of 36 hexagons. The entire structure is enclosed within a large circle. Labels include 'way between' at the top, '34' with a summation symbol \sum on the left, and '36' with a bracket on the right, indicating the count of hexagons in the outer ring.

Fig. 18 C



Composite

Overlapping Feed Distributions to Steer Vertically Between Nominal Beam Positions

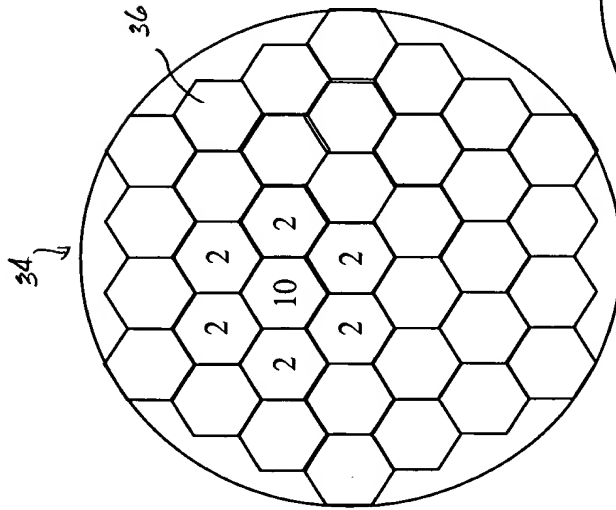


FIG. 19A

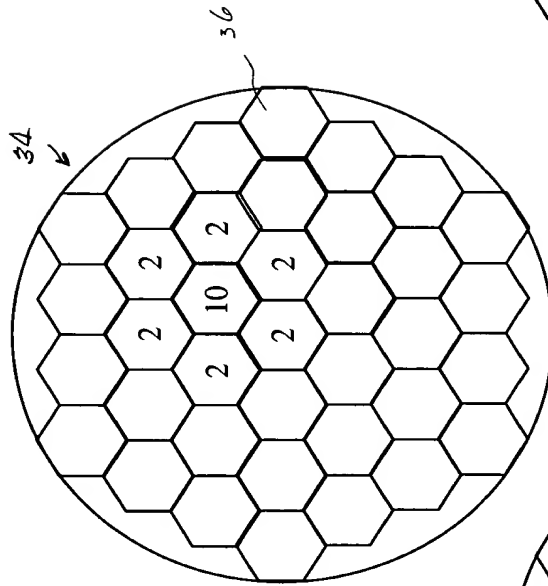


FIG. 19B

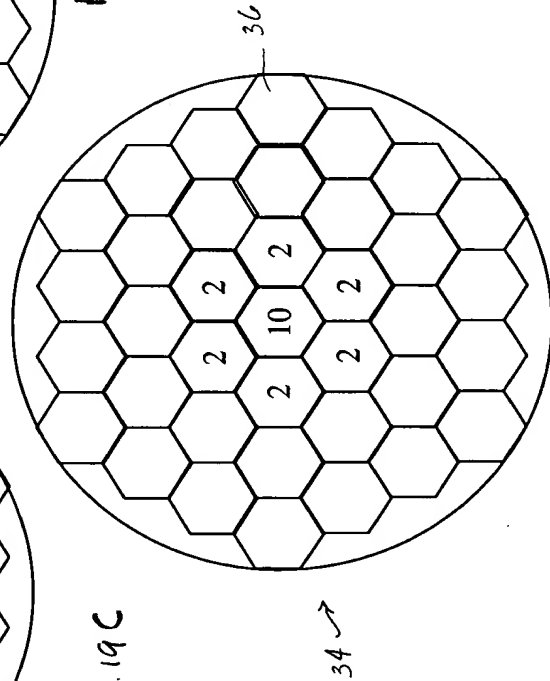


FIG. 19C

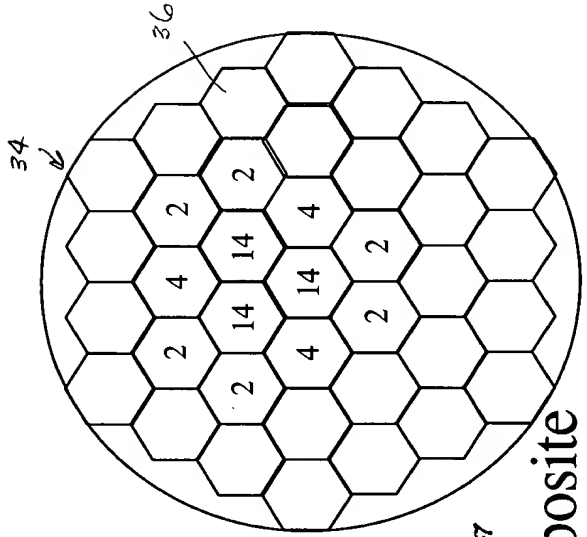


FIG. 19D

Composite

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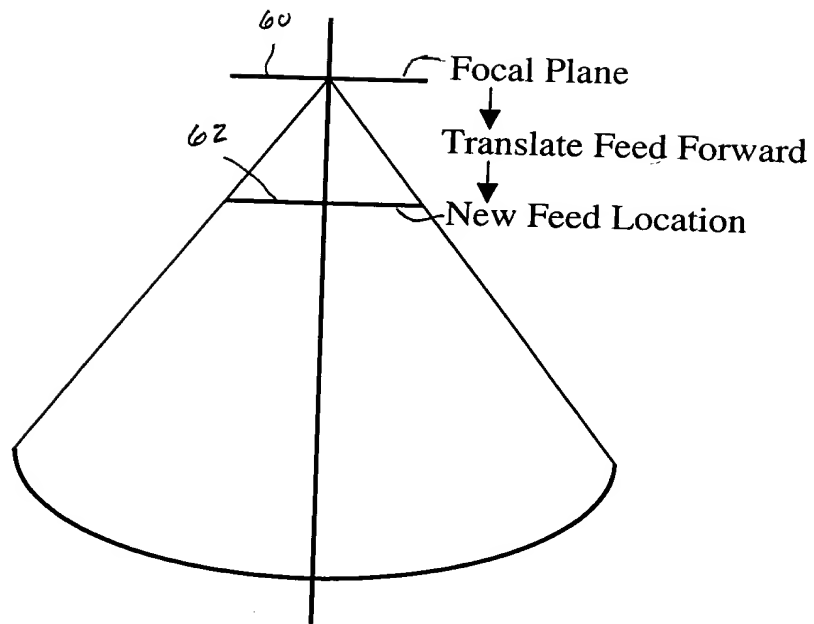
[illegible]

FIG. 20